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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,065	04/30/2001	Samson X. Huang	INTL-0563-US (P11334)	4510

7590 05/26/2004

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EXAMINER	
DHARIA, PRABODH M	

ART UNIT	PAPER NUMBER
2673	11

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,065	HUANG, SAMSON X.	
	Examiner	Art Unit	
	Prabodh M Dharia	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. **Status:** Receipt is acknowledged of papers submitted on 05-10-2004 under request for reconsideration has been placed of record in the file. Claims 1-11 are pending in this action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-11are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (5,073,010) in view of McKnight (6,329,971 B2).

Regarding Claim 1, Johnson et al. teaches a method comprising: biasing a first plate spatial light modulator (Col. 10, Lines 11-26) with alternating signals of a first and second polarity (Col. 6, Line 60 to Col. 7, Line 9) and biasing a second plate of a spatial light modulator with only first polarity (Col. 10, Lines 23,24).

However, Johnson et al. fails to teach a drive circuit to apply positive potential during a negative cycle of liquid crystal modulation and apply negative potential during a positive cycle of liquid crystal modulation to said top plate and to bias the pixel electrode with only a positive potential during both the positive and negative cycles of liquid crystal modulation.

However, McKnight teaches a drive circuit to apply positive potential during a negative cycle of liquid crystal modulation and apply negative potential during a positive cycle of liquid

crystal modulation to said top plate and to bias the pixel electrode with only a positive potential during both the positive and negative cycles of liquid crystal modulation (Col. 20, Line 15 to Col. 21, Line 17, Col. 20, Line 39 to Col. 21, Line 5, Col. 23, Lines 11-29, Lines 56-60).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate McKnight teaching in teaching of Johnson et al. to be able control the state of Electro-optical characteristics of the optical materials and relate to control of uniformity of display and the control voltage provided to control phase relationship relative to update of pixel data in order to achieve frame to frame independence even at high rates of display.

Regarding Claim 2, Johnson et al. teaches biasing a top plate and a pixel electrode (Col. 10, Lines 11-26).

Regarding Claim 3, Johnson et al. teaches biasing said top plate to a negative voltage (Col. 10, Lines 19-26).

Regarding Claim 4, Johnson et al. teaches maintaining said pixel electrode at a positive voltage (Col. 10, Lines 38-50).

Regarding Claim 5, Johnson et al. teaches biasing said pixel electrode across its full dynamic range (Col. 10, Lines 38-50).

Regarding Claim 6, Johnson et al. teaches alternately biasing the top plate negatively and positively (Col. 10, Lines 19-26, Lines 38-50).

Regarding Claim 7, Johnson et al. teaches a spatial light modulator (Col. 5, lines 52-55) comprising: a top plate (Col. 10, Lines 21-24); a liquid crystal layer (Col. 6, lines 54-59); a pixel electrode (Col. 9, Lines 42-58), said top plate and said pixel electrode sandwiching said liquid crystal layer (Col. 6, lines 39-59, Col. 9, lines 42-65); and a drive circuit to apply positive and negative bias potentials to one of said electrode and said top plate (Col. 9, lines 42-65, Col. 10, Lines 19-26, Lines 38-50) and to bias the pixel electrode with only a positive potential (Col. 10, Lines 38-50).

However, Johnson et al. fails to teach a drive circuit to apply positive potential during a negative cycle of liquid crystal modulation and apply negative potential during a positive cycle of liquid crystal modulation to said top plate and to bias the pixel electrode with only a positive potential during both the positive and negative cycles of liquid crystal modulation.

However, McKnight teaches a drive circuit to apply positive potential during a negative cycle of liquid crystal modulation and apply negative potential during a positive cycle of liquid crystal modulation to said top plate and to bias the pixel electrode with only a positive potential during both the positive and negative cycles of liquid crystal modulation (Col. 20, Line 15 to Col. 21, Line 17, Col. 20, Line 39 to Col. 21, Line 5, Col. 23, Lines 11-29, Lines 56-60).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate McKnight teaching in teaching of Johnson et al. to be able control the state of Electro-optical characteristics of the optical materials and relate to control of uniformity of

display and the control voltage provided to control phase relationship relative to update of pixel data in order to achieve frame to frame independence even at high rates of display.

Regarding Claim 8, Johnson et al. teaches a drive circuit to apply a negative bias potential to said top plate (Col. 9, lines 42-65, Col. 10, Lines 19-26, Lines 38-50).

Regarding Claim 9, Johnson et al. teaches wherein said spatial light modulator is a liquid crystal over silicon spatial light modulator (Col. 5, lines 52-55, Col. 6, Lines 39-59, Col. 9, lines 42-65).

Regarding Claim 10, Johnson et al. teaches wherein said drive circuit applies positive and negative bias potentials in alternating frames (Col. 6, Line 60 to Col. 7, Line 11, Col. 9, Line 66 to Col. 10, Line 10).

Regarding Claim 11, Johnson et al. teaches wherein said top plate is formed of indium in oxide (Col. 6, Lines 54-59, Col. 9, Lines 42-65).

Response to Arguments

4. Applicant's arguments filed 05-10-2004 have been fully considered but they are not persuasive.

Applicant argues cited references fail to teach **to bias liquid crystal material at the lower voltage supply. Since most of the modern driver ICs are designed to operate at very**

lower voltage, so that the biasing voltage required by the references will not allow driver circuit teaching to be integrated in an IC.

Examiner argues back as the applicant's argument underlined and bold above is not recited in any independent claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M Dharia whose telephone number is 703-605-1231. The examiner can normally be reached on M-F 8AM to 5PM.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-3054938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

May 24, 2004

VIJAY SHANKAR
PRIMARY EXAMINER